

10/565,957

(FILE 'HOME' ENTERED AT 17:58:43 ON 13 NOV 2007)

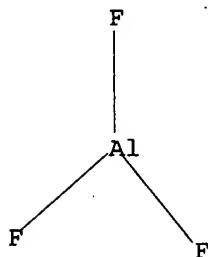
FILE 'REGISTRY' ENTERED AT 17:59:01 ON 13 NOV 2007

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 17:59:29 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 123 TO ITERATE

100.0% PROCESSED 123 ITERATIONS

35 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 1795 TO 3125

PROJECTED ANSWERS: 346 TO 1054

L2 35 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 17:59:36 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 2582 TO ITERATE

100.0% PROCESSED 2582 ITERATIONS

571 ANSWERS

SEARCH TIME: 00.00.01

L3 571 SEA SSS FUL L1

=> fil caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

172.55

172.76

FILE 'CAPLUS' ENTERED AT 18:00:10 ON 13 NOV 2007

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=> s l3

L4 15890 L3

=> s l4 and catalyst

781698 CATALYST

L5 753 L4 AND CATALYST

=> s l5 and activation

832574 ACTIVATION

L6 37 L5 AND ACTIVATION

=> d 1-37 bib abs

L6 ANSWER 1 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:980474 CAPLUS

DN 143:440014

TI Design of highly active heterogeneous palladium catalysts for the activation of aryl chlorides in Heck reactions

AU Proeckl, Sandra S.; Kleist, Wolfgang; Koehler, Klaus

CS Department of Chemistry, Technische Universitaet Muenchen, Garching, D-85747, Germany

SO Tetrahedron (2005), 61(41), 9855-9859

CODEN: TETRAB; ISSN: 0040-4020

PB Elsevier B.V.

DT Journal

LA English

OS CASREACT 143:440014

AB In situ generation of highly active palladium species by intermediate dissoln. of Pd from solid supported catalysts has been demonstrated to be a very successful approach for the activation of aryl chlorides in Heck reactions. The new heterogeneous Pd catalysts act as reservoir for mol. Pd species with unsatd. coordination sphere in solution. Crucial Pd leaching and re-deposition onto the support can be controlled by optimization of reaction conditions and by the properties of the catalysts. Pd is re-deposited onto the support at the end of the reaction. The catalysts, palladium supported on activated carbon, on various metal oxides or fluorides and Pd complexes in zeolites, are easy to prepare, though the preparation conditions are crucial. The catalysts

convert

all aryl bromides completely within minutes (TON 100,000). Aryl chlorides (even deactivated ones) are converted with high yields, within 2-6 h. The catalysts belong to the most active ones in Heck reactions, including best homogeneous systems, and fulfill all relevant requirements for practical applications in laboratory and industry.

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:506274 CAPLUS

DN 143:172391

TI Peptide bond formation activated by the interplay of Lewis and Bronsted catalysts

AU Rimola, Albert; Tosoni, Sergio; Sodupe, Mariona; Ugliengo, Piero

CS Departament de Quimica, Universitat Autònoma de Barcelona, Bellaterra,  
08193, Spain  
SO Chemical Physics Letters (2005), 408(4-6), 295-301  
CODEN: CHPLBC; ISSN: 0009-2614  
PB Elsevier B.V.  
DT Journal  
LA English  
AB The roles of Bronsted and Lewis acid catalysts on a model peptide bond  
formation reaction  $\text{H}_3\text{N} + \text{HCOOH} \rightarrow \text{H}_2\text{NCHO} + \text{H}_2\text{O}$  with HF and  $\text{AlF}_3$   
acids, resp., as catalysts have been studied using ab initio calcns. Both  
catalysts, either alone or in combination, have been adopted to activate  
the synthesis of formamide, the simplest model of a peptide bond. It has  
been found that the synergy between both catalysts dramatically lowers the  
activation barrier for the amide bond formation, a fact relevant  
in the prebiotic synthesis of peptides on the surface of oxidic minerals  
rich in Lewis/Bronsted sites.

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2005:93773 CAPLUS  
DN 142:179264  
TI Process for activation of an aluminum fluoride-based  
isomerization catalysts and a process for isomerizing 1,2-dichloro-1,1,2-  
trifluoroethane into 2,2-dichloro-1,1,1-trifluoroethane  
IN Cuzzato, Paolo; Basciutti, Paolo; Bragante, Letanzio  
PA Solvay Solexis S.p.A., Italy  
SO Eur. Pat. Appl., 14 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1502906	A1	20050202	EP 2003-102385	20030731
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CA 2534250	A1	20050210	CA 2004-2534250	20040727
WO 2005012213	A1	20050210	WO 2004-EP51624	20040727
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CN 1832908	A	20060913	CN 2004-80021806	20040727
US 2006189834	A1	20060824	US 2006-565957	20060126
PRAI EP 2003-102385	A	20030731		
WO 2004-EP51624	W	20040727		
OS CASREACT 142:179264				

AB An activated  $\text{AlF}_3$ -based catalyst is produced by treating crude  
 $\text{AlF}_3$  for >5 h with a gas stream at 300-450° and the activated  
catalyst is then used for isomerizing 1,2-dichloro-1,1,2-  
trifluoroethane into 2,2-dichloro-1,1,1-trifluoroethane.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:74858 CAPLUS

DN 140:323155  
TI Effect of the support on the basic and catalytic properties of KF  
AU Clacens, Jean-Marc; Genuit, Daisy; Delmotte, Luc; Garcia-Ruiz, Amado;  
Bergeret, Gerard; Montiel, Ramon; Lopez, Joseph; Figueras, Francois  
CS Institut de Recherches sur la Catalyse, CNRS, Villeurbanne, 69626, Fr.  
SO Journal of Catalysis (2004), 221(2), 483-490  
CODEN: JCTLA5; ISSN: 0021-9517  
PB Elsevier Science  
DT Journal  
LA English  
OS CASREACT 140:323155  
AB KF supported by various supports was characterized by DTG-DTA coupled with mass spectral anal. of the gases evolved by the solid, in situ X-ray diffraction, calorimetry, 19F NMR spectroscopy, and tested in the Michael addition of cyclohexene-2-one with nitroalkanes. After dehydration at low temps., from 19F NMR spectroscopy F is in part as KF when the support is  $\alpha$ -alumina but only as K3AlF6 when the support is  $\gamma$ -alumina. During activation no fluorine is lost. On  $\alpha$ -alumina KF is detected by X-ray diffraction only after calcination at about 723 K and results in part of the decomposition of K3AlF6; it disappears with formation of K2AlF5 and KAlO2 at higher temps. A comparison of the results obtained by X-ray diffraction and NMR suggests that KF is well dispersed on  $\alpha$ -alumina. KF/ $\alpha$ -alumina is a strong base, stronger than KF on  $\gamma$ -alumina, and more active for Michael reactions. On KF/ $\alpha$ -alumina the Michael condensation of 2-cyclohexen-1-one with nitroalkanes can be achieved in 5 min with an equimolar mixture of reactants. Solvent-free reactions can also be achieved reaching 75% yield in adduct after 8 h, and KF/ $\alpha$ -alumina is also active after simple drying at 393 K, avoiding the usual activation at higher temps.  
RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2003:829514 CAPLUS  
DN 140:28753  
TI Catalytic Process for the Conversion of Halon 1211 (CBrClF2) to Halon 1301 (CBrF3) and CFC 13 (CClF3)  
AU Uddin, Md. Azhar; Kennedy, Eric M.; Yu, Hai; Sakata, Yusaku; Dlugogorski, Bogdan Z.  
CS Process Safety and Environment Protection Group, School of Engineering, The University of Newcastle, Callaghan, 2308, Australia  
SO Industrial & Engineering Chemistry Research (2003), 42(24), 6000-6006  
CODEN: IECRED; ISSN: 0888-5885  
PB American Chemical Society  
DT Journal  
LA English  
OS CASREACT 140:28753  
AB This paper reports the catalytic pyrolysis of CBrClF2 over  $\gamma$ -Al2O3 and  $\beta$ -AlF3 in a plug-flow reactor operated at atmospheric pressure and within the temperature window of 523-673 K. The results indicate a very high conversion of halon 1211, in excess of 90% for  $\gamma$ -Al2O3 and 60-80% for  $\beta$ -AlF3, over the entire temperature range. Halon 1301 (CBrF3) and CFC 13 (CClF3) are the main pyrolysis products, although their yields vary with temperature and catalyst type. If accepted by regulators, this process offers a reaction pathway for converting stockpiled halon 1211 into more widely used halon 1301. A mechanistic interpretation of the results is proposed, including the reaction pathways and the transformations taking place in the catalysts. The mechanism involves the initial activation of the catalysts, which is reflected by the formation of the surface aluminum fluoride species identified by XRD anal. This species then facilitates the halogen exchange between Br and Cl in CBrClF2 and F in the catalyst framework, leading to the formation of CBrF3 and CClF3. It is also proposed that two minor species (CBr2F2 and CCl2F2) are formed by dismutation of CBrClF2.

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1999:752877 CAPLUS  
DN 132:4241  
TI Activation method of titanium silicalite and its use in  
oxidation processes with hydrogen peroxide  
IN Balducci, Luigi; Ungarelli, Raffaele; Bianchi, Daniele; Mantegazza, Maria  
Angela; Bagatin, Roberto  
PA Enichem S.p.A., Italy; ENI S.p.A.  
SO Eur. Pat. Appl., 17 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 958861	A1	19991124	EP 1999-108339	19990428
	EP 958861	B1	20020605		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	IT 1299277	B1	20000229	IT 1998-MI1087	19980519
	IT 98MI1087	A1	19991119		
	IT 1304175	B1	20010308	IT 1998-MI2712	19981217
	IT 98MI2712	A1	20000619		
	ES 2180240	T3	20030201	ES 1999-108339	19990428
	US 6288004	B1	20010911	US 1999-305281	19990505
	RU 2159675	C1	20001127	RU 1999-111171	19990518
	JP 2000202305	A	20000725	JP 1999-138930	19990519
	TW 531447	B	20030511	TW 1999-88108545	19990525
PRAI	IT 1998-MI1087	A	19980519		
	IT 1998-MI2712	A	19981217		

AB A method is described for improving the catalytic performances of titanium silicalite having formula  $x\text{TiO}_2 \cdot (1-x)\text{SiO}_2$ ; wherein x ranges from 0.0001 to 0.04 by the activation of the catalyst (I) in an aqueous medium with hydrogen peroxide, in the presence of precursors of fluoride ions or anionic species containing fluorine. The activated catalyst is preferably used in oxidation processes with hydrogen peroxide of organic substrates and, in particular, hydroxylation reactions of aromatic compds., ammoximation reactions of carbonyl compds., epoxidn. reactions of olefinic compds. and oxidation reactions of nitrogenated compds.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1998:428526 CAPLUS  
DN 129:161920  
TI A computer modeling study on the interaction of  $-(\text{CF}_2\text{CF}_2\text{O})-$ -polyperfluorinated ethers with Lewis acid sites: perfluorodiethyl ether  
AU Waltman, R. J.  
CS Storage Systems Div., IBM, San Jose, CA, 95193, USA  
SO Journal of Fluorine Chemistry (1998), 90(1), 9-16  
CODEN: JFLCAR; ISSN: 0022-1139  
PB Elsevier Science S.A.  
DT Journal  
LA English  
AB Lewis acid catalysis significantly enhances the thermally induced degradation of polyperfluorinated ether lubricants. Perfluorodiethyl ether, or PFDEE, and  $\text{AlF}_3$  were used as models to investigate via ab initio theory, the Lewis acid-base interactions between polyperfluorinated ethers and Lewis acid sites. The results of these studies indicate that PFDEE may form a Lewis acid-base pair between the ether O atom in PFDEE and the Al atom in  $\text{AlF}_3$  provided that there is no steric hindrance limiting access to the

ether O atom. This may be achieved, for example, by PFDEE adopting a trans-gauche instead of a trans-trans conformation. In the trans-trans conformation, a terminal perfluoromethyl group sterically interferes with the accessibility of the ether O atom to the AlF<sub>3</sub> surface. These results indicate that in lubricant mols. such as the 'Z' family of Fomblin fluids, composed of a copolymer of perfluoromethylene and perfluoroethylene oxide units, steric hindrance will limit AlF<sub>3</sub> access to the ether O atom and would depend upon the ratio of -CF<sub>2</sub>CF<sub>2</sub>O and -CF<sub>2</sub>O- structural units and their spatial distribution. Even when the -CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>- PFDEE backbone adopts a local trans-gauche conformation such as to spatially allow a Lewis acid-base interaction between the ether O atom and Al, the interat. distance is much greater, 2.5 Å compared to 1.8 Å for perfluoromethylene oxide. The binding energy is correspondingly smaller, -3 compared to -9 kcal/mol, resp. Several degradation paths for the decomposition of PFDEE, originating within the -CF<sub>2</sub>OCF<sub>2</sub>- structural group, were computed. Thus, the decomposition of PFDEE to CF<sub>3</sub>CF<sub>3</sub> and CF<sub>3</sub>CFO via an initial cleavage of a C-O bond, and, alternatively, via a transition state, were investigated. In both cases, the activation energy to initiate the decomposition is rather high, near 80-100 kcal/mol. However, in the presence of an AlF<sub>3</sub> catalyst, the activation energy for the decomposition reaction via the transition structure is significantly reduced to 50 kcal/mol. Alternatively, a C-O bond scission leading to the formation of radical sites adjacent to -CF<sub>2</sub>O- structural units may lead to mass loss via elimination of COF<sub>2</sub>. Such a reaction proceeds with an activation energy of only 24 kcal/mol.

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1998:150663 CAPLUS  
DN 128:181811  
TI Catalytic heterocyclization of acetylene with ammonia  
AU Yusupov, D.; Turabdzhanov, S. M.; Mirkamilov, T. M.; Asadullaev, M. A.  
CS Tashk. Gos. Tekh. Univ., Tashkent, Uzbekistan  
SO Khimicheskaya Promyshlennost (Moscow) (1997), (9), 603-605  
CODEN: KPRMAW; ISSN: 0023-110X  
PB Izdatel'stvo Teza  
DT Journal  
LA Russian  
AB A mixture of 2- and 4-methylpyridines was obtained by reacting acetylene with ammonia in the presence of mixed metal oxides and fluorides, and the effect of catalyst concentration, partial NH<sub>3</sub> pressure, and reaction temperature on acetylene consumption and methylpyridine yield was determined  
The reaction followed the 1st-order kinetics; activation energy and rate constant data are presented.

L6 ANSWER 9 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1997:701815 CAPLUS  
DN 127:333087  
TI Catalyst for fluorination of halogenated hydrocarbons with hydrogen fluoride  
IN Rinaldi, Francesco; Cuzzato, Paolo; Bragante, Letanzio  
PA Ausimont S.p.A., Italy  
SO Eur. Pat. Appl., 9 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 801980	A1	19971022	EP 1997-106154	19970415
	EP 801980	B1	20020911		

R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, LT, FI

JP 10113562	A	19980506	JP 1997-97350	19970415
US 5919728	A	19990706	US 1997-843356	19970415
AT 223753	T	20020915	AT 1997-106154	19970415
CA 2202856	A1	19971017	CA 1997-2202856	19970416
CA 2202856	C	20060530		
CN 1177522	A	19980401	CN 1997-110592	19970417
CN 1091651	B	20021002		
PRAI IT 1996-MI732	A	19960417		
IT 1997-MI655	A	19970321		

AB A fluorination catalyst, supported on AlF<sub>3</sub> or fluorinated Al<sub>2</sub>O<sub>3</sub>, is based on an amorphous Cr(III) compound and on a compound of a metal selected from Mg, Ca, Sr, Ba, Sc, Ti and Zr with an atomic ratio Cr/other metal (50-1):1. The catalyst is prepared by impregnation of the support with an aqueous solution of soluble salts of Cr(III) and of the other metal

followed by drying of the impregnated support, treatment with an inert gas and activation with anhydrous HF. The catalyst is suitable for fluorination of halogenated hydrocarbons, e.g., CF<sub>3</sub>CH<sub>2</sub>Cl in gaseous phase with HF.

L6 ANSWER 10 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:470947 CAPLUS

DN 127:135499

TI The effect of Lewis acid catalysis on the decomposition of CF<sub>3</sub>OCF<sub>3</sub> to COF<sub>2</sub> and CF<sub>4</sub>

AU Pacansky, J.; Waltman, R. J.

CS IBM almaden Res. Center, San Jose, CA, 95120-6099, USA

SO Journal of Fluorine Chemistry (1997), 83(1), 41-45

CODEN: JFLCAR; ISSN: 0022-1139

PB Elsevier

DT Journal

LA English

AB The CF<sub>3</sub>OCF<sub>3</sub> (I)-AlF<sub>3</sub> Lewis-acid interaction was studied by ab initio theory to explain the catalytically enhanced degradation of polyperfluorinated ether lubricants. Thus, an understanding of the Lewis-acid interaction in these materials is gained by examining the optimized geometries of I in the presence and absence of AlF<sub>3</sub>. The computed bond parameters and partial atomic charges identify a strong interaction between the Al substrate and the I O atom. A transition state that connects the reactant I and products COF<sub>2</sub> and CF<sub>4</sub> is identified. The effect of the Lewis-acid interaction on the transition-state geometry is analyzed. A significant reduction in the activation energy to the transition state via the Lewis-acid interaction is computed, providing a quant. understanding for catalytically induced degradation in these materials.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:886079 CAPLUS

DN 123:260368

TI Catalytic fluorination of halogenated hydrocarbons in the vapor phase.

IN Garcia, Francois; Lacroix, Eric; Lerch, Alain; Rousset, Abel

PA Elf Atochem S.A., Fr.

SO Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 657409	A1	19950614	EP 1994-402780	19941205
	R: DE, ES, FR, GB, GR, IT, NL				
	FR 2713634	A1	19950616	FR 1993-14780	19931209
	FR 2713634	B1	19960119		

CA 2136939	A1	19950610	CA 1994-2136939	19941129
AU 9480339	A	19950615	AU 1994-80339	19941208
AU 682225	B2	19970925		
JP 07215898	A	19950815	JP 1994-306171	19941209
CN 1107754	A	19950906	CN 1994-119761	19941209
PRAI FR 1993-14780	A	19931209		

AB Halogenated hydrocarbons are vapor-phase fluorinated with HF in the presence of mixts. of Cr and V compds., with  $\geq 80\%$  of these metals being in the trivalent state. Loss of V during activation due to volatilization is decreased by the presence of the Cr(III) compds. and the use of compds. of V in the trivalent state.

L6 ANSWER 12 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1994:664667 CAPLUS  
 DN 121:264667

TI Characterization of catalytically active sites on aluminum oxides, hydroxyfluorides, and fluorides in correlation with their catalytic behavior

AU Hess, A.; Kemnitz, E.

CS Fachbereich Chemie, Humboldt-Universitat zu Berlin, Berlin, D-10115, Germany

SO Journal of Catalysis (1994), 149(2), 449-57  
 CODEN: JCTLA5; ISSN: 0021-9517

DT Journal

LA English

AB Temperature-programmed desorption of ammonia has been employed for the characterization of halogen exchange catalysts. Nonactivated and activated catalysts are compared in regard to their behavior in adsorption and desorption. Activation of  $\gamma$ -alumina and  $\text{AlF}_2(\text{OH})$  increases both the catalytic activity for halogen exchange and the amount and strength of ammonia adsorption. In contrast,  $\beta$ - $\text{AlF}_3$  possesses catalytic activity already without activation. This substance reveals no significant alternation of ammonia adsorption after activation. A connection was observed between the acidity of the catalysts and their reactivity. The nature of the acidic sites was determined by Fourier transform IR photoacoustic spectroscopy of pyridine chemisorbed on the solid surfaces. The results indicate that Lewis acid sites of a certain strength are responsible for the catalytic activity.

L6 ANSWER 13 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1994:655241 CAPLUS  
 DN 121:255241

TI Process for producing 1,1,2,2,3-pentafluoropropane

IN Yasuhara, Takashi; Yamamoto, Akinori; Aoyama, Hirokazu; Seki, Eiji

PA Daikin Industries, Ltd., Japan

SO PCT Int. Appl., 12 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9414737	A1	19940707	WO 1993-JP1888	19931224
	W: AU, BR, CA, JP, KR, RU, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2152936	A1	19940707	CA 1993-2152936	19931224
	CA 2152936	C	19980505		
	AU 9457162	A	19940719	AU 1994-57162	19931224
	BR 9307752	A	19951024	BR 1993-7752	19931224
	EP 679623	A1	19951102	EP 1994-903066	19931224
	EP 679623	B1	19990331		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	RU 2104264	C1	19980210	RU 1995-117118	19931224
	AT 178306	T	19990415	AT 1994-903066	19931224

	ES 2131670	T3	19990801	ES 1994-903066	19931224
	US 5629461	A	19970513	US 1995-464833	19950627
PRAI	JP 1992-360963	A	19921229		
	WO 1993-JP1888	W	19931224		

OS CASREACT 121:255241

AB A process for producing 1,1,2,2,3-pentafluoropropane (R-245ca) (I) in a high yield industrially and economically involves reacting 1-chloro-2,2,3,3-tetrafluoropropane (R-244ca) (II) with hydrogen fluoride in the presence of a fluorination catalyst. The fluorination catalyst is a fluoride or oxyfluoride obtained by fluorinating an oxide of a metal selected from Al, Cr, Mn, Ni, and Co with HF. This process gives I in high yield and selectivity which is useful as a substitute for CFC and HCFC and particularly as a forming agent for urethanes. Thus, chromium hydroxide prepared from aqueous Cr(NO<sub>3</sub>)<sub>3</sub> solution and

aqueous NH<sub>3</sub> was filtered, washed with water, dried at 100°, and molded into pellets (diameter 3 mm + height 3 mm) which were packed in a Hastelloy reaction tube, heated at 400° for 1 h, cooled to 200°, and treated with anhydrous HF for activation to give a fluorination catalyst. The latter catalyst (100 mL) was packed in a reaction tube, to which 200 mL HF and 35 mL II were introduced as gas at 350° to give I 66.2, II 29.9, 2,3,3-trifluoro-1-propene 2.6, 1,2,3,3-tetrafluoro-1-propene 0.8%, and 1-chloro-2,3,3-trifluoropropene 0.5%. The starting material II was prepared by passing HCF<sub>2</sub>CF<sub>2</sub>CH<sub>2</sub>OH 26.4 g/h and SOCl<sub>2</sub> 24 g/h into a Hastelloy reaction tube packed with 20 mL activated charcoal at 200°.

L6 ANSWER 14 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1994:557047 CAPLUS

DN 121:157047

TI ESCA, XRD, and IR characterization of aluminum oxide, hydroxyfluoride, and fluoride surfaces in correlation with their catalytic activity in heterogeneous halogen exchange reactions

AU Hess, A.; Kemnitz, E.; Lippitz, A.; Unger, W. E. S.; Menz, D. H.

CS Fachbereich Chem., Humboldt-Univ. Berlin, Berlin, D 10115, Germany

SO Journal of Catalysis (1994), 148(1), 273-80

CODEN: JCTLA5; ISSN: 0021-9517

DT Journal

LA English

AB The catalytic activity of certain aluminum oxides, hydroxyfluorides, and fluorides in dismutation reactions of the CHCl<sub>3</sub>-nFn haloalkane series has been studied. In most cases the catalyst surface has to be modified so that it is catalytically active. A haloalkane flow has been used for the activation procedure. The alteration of the solid phases is followed by XRD and IR. ESCA is applied to the characterization of the solid surface before and after treatment with the haloalkanes. The catalytically active phase formed during the activation of the solid samples is stoichiometrically and structurally similar to the β-AlF<sub>3</sub> structure. Sep. synthesized predried β-AlF<sub>3</sub> immediately possesses catalytic activity. The nature of the catalytically active species which can be formed using different solid starting substances is discussed. It is possible to draw a correlation between the ESCA results and the catalytic behavior of a number of solid samples.

L6 ANSWER 15 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1993:106143 CAPLUS

DN 118:106143

TI Activation of zeolites using hydrate of trivalent metal fluoride

IN Han, Scott; Chang, Clarence D.

PA Mobil Oil Corp., USA

SO U.S., 5 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5126296	A	19920630	US 1990-614345	19901116
PRAI	US 1990-614345		19901116		

AB A method for enhancing the activity of a porous crystalline zeolite having a framework  $\geq 25:1$  SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> mol ratio comprises contacting the zeolite with a solution containing a hydrate of trivalent metal fluoride (e.g., Al, Ga, In) in aqueous media under conditions sufficient to cause incorporation of the metal in the framework of the zeolite. The zeolite is useful as catalyst component for acid-catalyzed organic compound conversion reactions, e.g., cracking.

L6 ANSWER 16 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1992:641905 CAPLUS

DN 117:241905

TI FT-IR and silicon-29, aluminum-27, and fluorine-19 MAS NMR studies of the adsorption of cadmium fluoride, zinc fluoride and copper difluoride onto montmorillonite K10; activity towards Friedel-Crafts alkylation

AU Asseid, Fathi M.; Miller, Jack M.; Clark, James H.

CS Dep. Chem., Brock Univ., St. Catharines, ON, L2S 3A1, Can.

SO Canadian Journal of Chemistry (1992), 70(9), 2398-404

CODEN: CJCHAG; ISSN: 0008-4042

DT Journal

LA English

AB ZnF<sub>2</sub>, CdF<sub>2</sub>, and CuF<sub>2</sub> were adsorbed onto the surface of montmorillonite K10, and the IR and 19F, 27Al, and 29Si magic angle spinning (MAS) NMR spectra of the resulting reagents over a range of loadings and activation temps. were obtained. CuF<sub>2</sub> was observed to attack the SiO<sub>2</sub> layer and form the complex CuSiF<sub>6</sub>; ZnF<sub>2</sub> tends to attack the aluminum oxide layer, in which Zn isomorphously replaces Al, and forms AlF<sub>3</sub> and AlF<sub>4</sub><sup>-</sup> complexes. The spectroscopic evidence rules out the formation of any Al-F and(or) Si-F species as CdF<sub>2</sub> is adsorbed on the surface of montmorillonite K10. The reactivity of MF<sub>2</sub>-K10 reagents towards the Friedel-Crafts reaction of benzene with benzyl chloride varies from one reagent to another. ZnF<sub>2</sub>-K10 was observed to be the most reactive and CuF<sub>2</sub> was the least reactive.

L6 ANSWER 17 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:130230 CAPLUS

DN 114:130230

TI Regeneration or activation of noble metal catalysts using fluorohalocarbons or fluorohalohydrocarbons

IN Kellner, Carl S.; Lerou, Jan J.; Rao, V. N. M.; Wuttke, Klawns G.

PA du Pont de Nemours, E. I., and Co., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4980324	A	19901225	US 1989-412326	19890925
	CA 2067113	A1	19910326	CA 1990-2067113	19900828
	WO 9104097	A1	19910404	WO 1990-US4796	19900828
	W: AU, BR, CA, JP, KR, SU				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE				
	AU 9062974	A	19910418	AU 1990-62974	19900828
	AU 636387	B2	19930429		
	BR 9007677	A	19920707	BR 1990-7677	19900828
	EP 494162	A1	19920715	EP 1990-913119	19900828
	EP 494162	B1	19950222		
	R: DE, ES, GB, IT, NL				
	JP 05500329	T	19930128	JP 1990-512289	19900828

ES 2068396	T3	19950416	ES 1990-913119	19900828
RU 2051737	C1	19960110	RU 1990-5011054	19900828
IN 175586	A1	19950715	IN 1990-CA814	19900919
US 5094988	A	19920310	US 1990-585464	19900920
DD 297573	A5	19920116	DD 1990-344169	19900924
CN 1051130	A	19910508	CN 1990-108673	19900925
ZA 9007650	A	19920527	ZA 1990-7650	19900925
CN 1079677	A	19931222	CN 1993-101764	19930219
AU 9338689	A	19930729	AU 1993-38689	19930520
AU 651524	B2	19940721		
PRAI US 1989-412326	A	19890925		
WO 1990-US4796	A	19900828		
CN 1990-108673	A	19900925		

OS CASREACT 114:130230; MARPAT 114:130230

AB A process for the regeneration and/or activation of a noble metal catalyst comprises contacting the catalyst with an atmospheric comprising a fluorohalocarbon and/or a fluorohydrocarbon of the formula,  $C_nH_mF_pX_q$ , where X is Cl and/or Br; n is an integer from 1-6; m is an integer from 0-6, provided that m can be no more than the total n in the compound; p and q are integers from 1-13 when the compound is acyclic and integers from 1-11 when the compound is cyclic, provided that the fluorohalocarbon and/or fluorohalohydrocarbon always contain  $\geq 1$  Cl or Br atom and provided that  $m + p + q = 2n + 2$  when the compound is acyclic and that  $m + p + q = 2n$  when the compound is cyclic, at a temperature  $>200^\circ$ .

L6 ANSWER 18 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:101118 CAPLUS

DN 114:101118

TI Process for preparing 1,1-dichloro-1-fluoroethane

IN Swearingen, Steven Henry; Wehner, John Francis; Ridley, Marilyn Grier

PA du Pont de Nemours, E. I., and Co., USA

SO Eur. Pat. Appl., 7 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 399705	A1	19901128	EP 1990-305103	19900511
	EP 399705	B1	19940105		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	AT 99662	T	19940115	AT 1990-305103	19900511
	CA 2017345	A1	19901125	CA 1990-2017345	19900523
	BR 9002428	A	19910806	BR 1990-2428	19900523
	AU 9055848	A	19901129	AU 1990-55848	19900524
	AU 631882	B2	19921210		
	RU 2024474	C1	19941215	RU 1990-4743890	19900524
	CN 1047491	A	19901205	CN 1990-103793	19900525
	JP 03020231	A	19910129	JP 1990-136925	19900525
	ZA 9004036	A	19920129	ZA 1990-4036	19900525
	US 5105033	A	19920414	US 1991-738679	19910731
PRAI	US 1989-356949	A	19890525		
	EP 1990-305103	A	19900511		

AB The process for preparing the title compound (I) comprises contacting a vapor phase mixture of  $Cl_2C:CH_2$  (II) and anhydr. HF with a hydrofluorination catalyst to produce a 1st product containing  $Cl_2FCMe$  (III) and II, and contacting the 1st product stream with anhydrous HF at an effective temperature and pressure wherein at least some of the 1st product stream is in liquid state to form a 2nd product stream, and recovering I with reduced II content from the 2nd product stream. A reactor was filled with alumina; the alumina beds purged with N while heating to  $100^\circ$ , and then a gas feed mixture of air and anhydrous HF, causing the temperature to rise to  $200^\circ$ ;

addnl. HF was fed causing the temperature to rise to 300 and then 400° with reduction of N feed until pure HF was fed to beds at 400-500° and the activation took several days. The reactor pressure was set at .apprx.45 psig, a mixture of HF and II was fed into a 1st reactor with a temperature set at 74° at the feed and 150° at the exit end. The product stream from the 1st reactor was introduced to the 2nd reactor, and the temperature was 70° at the feed end and 51° at the exit end; and at a pressure of 45 psig, the product mixture at <65° is mostly liquid so that 1/2 of the 2nd reactor was filled with liquid resulting in 99.5% I, 0.5% III and 600 ppm II. Adjusting the feed rates of reactants, temperature and pressure the residual II dropped to 286 ppm.

L6 ANSWER 19 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:36698 CAPLUS

DN 112:36698

TI Manufacture of ethylene oxide from ethylene in presence of high-efficiency silver epoxidation catalysts on carriers

IN Jin, Jiquan; Jin, Guoquan; Xu, Yong; Shang, Liandi; Luo, Guochun

PA China Petrochemical Corp., Peop. Rep. China; Yanshan Petro-Chemical Corp.

SO Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 327356	A1	19890809	EP 1989-301001	19890202
	EP 327356	B1	19950322		
	R: DE, GB, NL				
	CN 1034678	A	19890816	CN 1988-100400	19880203
	CN 1009437	B	19900905		
	IN 171804	A1	19930109	IN 1989-CA98	19890131
	US 5063195	A	19911105	US 1989-304531	19890201
	JP 02056246	A	19900226	JP 1989-24136	19890203
	JP 06067475	B	19940831		
PRAI	CN 1988-100400	A	19880203		

AB Catalysts which have a high selectivity for the manufacture of ethylene oxide from C<sub>2</sub>H<sub>4</sub> are prepared by impregnating an alumina carrier with uniform pore structure and surface area (prepared from trihydrated  $\alpha$ -alumina, boehmite alumina, and carbonaceous materials well matched both in particle sizes and in relative proportions, which are treated with a fluxing agent, a fluoride, a binder, and water, extruded, and calcined) with a solution containing Ag compds. and promoters, followed by reduction and activation. These carriers have a sp. surface area of 0.2-2 m<sup>2</sup>/g, preferably 0.8-1.3 m<sup>2</sup>/g, a pore volume >0.5 mL/g, preferably 0.5-0.7 mL/g, and pore radius <30  $\mu$ m 75-95% of total volume and >30  $\mu$ m 10-25% of total volume

L6 ANSWER 20 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1989:10080 CAPLUS

DN 110:10080

TI Catalysts and process for 2,2-dichloro-1,1,1-trifluoroethane manufacture from tetrachloroethane and hydrogen fluoride

IN Carmello, Diego; Guglielmo, Giorgio

PA Ausimont S.p.A., Italy

SO Eur. Pat. Appl., 7 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 282005	A1	19880914	EP 1988-103621	19880308
	EP 282005	B1	19911204		
	R: CH, DE, ES, FR, GB, LI, NL, SE				

ZA 8801535	A	19881026	ZA 1988-1535	19880303
AU 8812748	A	19880908	AU 1988-12748	19880307
AU 603188	B2	19901108		
BR 8800992	A	19881011	BR 1988-992	19880307
CA 1290351	C	19911008	CA 1988-560877	19880308
PL 162267	B1	19930930	PL 1988-271065	19880308
ES 2039488	T3	19931001	ES 1988-103621	19880308
HU 46638	A2	19881128	HU 1988-1138	19880309
HU 200151	B	19900428		
JP 63295521	A	19881201	JP 1988-55928	19880309
JP 2557936	B2	19961127		
SU 1706385	A3	19920115	SU 1988-4355357	19880309
US 4967023	A	19901030	US 1989-403070	19890905
US 5091601	A	19920225	US 1990-584960	19900919
US 5262574	A	19931116	US 1991-793879	19911118
US 5276224	A	19940104	US 1992-981651	19921125
US 5354927	A	19941011	US 1993-72387	19930607
PRAI IT 1987-19622	A	19870309		
US 1988-163659	B1	19880303		
US 1989-403070	A1	19890905		
US 1990-584960	A1	19900919		
US 1991-793879	A3	19911118		
US 1992-981651	A3	19921125		

AB 1,1,1-Trifluoro-2,2-dichloroethane is prepared by reacting C<sub>2</sub>Cl<sub>4</sub> with HF in the gas phase in the presence of catalysts comprising Cr<sub>2</sub>O<sub>3</sub> supported on  $\gamma$ - and/or  $\beta$ -form AlF<sub>3</sub>. AlF<sub>3</sub> (240 g; consisting of  $\Delta$  form 30,  $\gamma$  form 60, and  $\beta$  and  $\alpha$  forms 10%) was impregnated with a solution comprising 52.3 g CrCl<sub>3</sub>·6H<sub>2</sub>O in 58 mL H<sub>2</sub>O. The catalyst was partially dried at 110° for 1.5 h, heated at 200° under N and under a mixture of air and HF. The activation was continued for 2 h at 400° under air and HF, then 0.855 mol/h C<sub>2</sub>Cl<sub>4</sub> and 3.542 mol/h HF were contacted with the catalyst at 360° (contact time 5 s), producing 42.9% CF<sub>3</sub>CHCl<sub>2</sub> at 12% C<sub>2</sub>H<sub>4</sub> conversion.

L6 ANSWER 21 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1986:226701 CAPLUS

DN 104:226701

TI Catalysis over aluminum fluoride-activated high-silica zeolites

IN Chang, Clarence D.; Miale, Joseph N.

PA Mobil Oil Corp., USA

SO U.S., 6 pp. Cont.-in-part of U.S. 4,530,756.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4564719	A	19860114	US 1985-733338	19850513
	US 4444902	A	19840424	US 1981-333370	19811222
	US 4530756	A	19850723	US 1984-581497	19840217
PRAI	US 1981-333370	A2	19811222		
	US 1984-581497	A2	19840217		

OS CASREACT 104:226701; MARPAT 104:226701

AB A catalyst for the conversion of alcs., ketones, and/or ethers to hydrocarbons is prepared by calcining a crystalline zeolite having initial silica/alumina molar ratio > 100 at 200-600°, contacting it with solid AlF<sub>3</sub>, and converting the AlF<sub>3</sub>-contacted zeolite to H form. Thus, a zeolite ZSM-5 having silica/alumina molar ratio .apprx.30,000 was calcined 30 min at 538°, extruded with alumina binder to give a 1/16 in. extrudate containing 35% alumina, calcined at 538°, refluxed 3 h in 1N Al(NO<sub>3</sub>)<sub>3</sub>, dried, impregnated with excess NH<sub>4</sub>F solution to precipitate AlF<sub>3</sub>, dried at 130°, treated with aqueous NH<sub>4</sub>NO<sub>3</sub> solution, and calcined to prepare a

catalyst. Contacting MeOH with the catalyst at 500° gave 99% conversion to hydrocarbons containing CH<sub>4</sub> 4.9, ethene 9.8, propene 37.3, butene 18.5, pentene 6.4, and aromatic hydrocarbons 7.8%.

L6 ANSWER 22 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1985:439610 CAPLUS  
 DN 103:39610  
 TI Augmenting the activity of a zeolite catalyst  
 IN Chang, Clarence Dayton; Miale, Joseph Nicolas  
 PA Mobil Oil Corp. , USA  
 SO Braz. Pedido PI, 11 pp.  
 CODEN: BPXXDX  
 DT Patent  
 LA Portuguese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	BR 8304392	A	19850326	BR 1983-4392	19830815
PRAI	BR 1983-4392		19830815		

AB The catalytic activity of zeolites (with an exchange capacity <0.7 mequiv/g) is increased by calcination of the zeolite at 200-600° for 1 min-48 h, contacting the calcined zeolite with an Al fluoride (e.g., AlF<sub>3</sub>), and conversion of the zeolite to its protonated form by ion exchange with NH<sub>3</sub> followed by calcination at 200-600°. The untreated zeolite has a SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> mol. ratio of >100:1 and a constraint index of 1-12. The treated zeolite is used as a catalyst or a catalyst component in the conversion of organic products (e.g., in hydrocarbon cracking and in MeOH conversion to gasoline). Thus, ZSM 5 zeolite (SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> mol. ratio .apprx.26,000:1) was calcined at 538° for 30 min, impregnated with NaAlO<sub>2</sub> dissolved in water, dried for 1 h at 130°, contacted with NH<sub>4</sub>F to precipitate AlF<sub>3</sub>, mixed in an ultrasonic bath for 1 min, washed 3 times with water, dried at 320°, calcined at atmospheric pressure and 650°, exchanged with 1N aqueous NH<sub>4</sub>NO<sub>3</sub>, treated with steam at 450° for 22 h, resubmitted to exchange with aqueous NH<sub>4</sub>NO<sub>3</sub>, and calcined. The activity of the zeolite in cracking of hexane (α test) and the isomerization of cyclopropane increased from 0.015 and 1, resp., for the untreated zeolite to 1.9 and 450, resp., in the treated zeolite.

L6 ANSWER 23 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1984:440826 CAPLUS  
 DN 101:40826  
 TI Activation of high-silica zeolites  
 IN Chang, Clarence D.; Miale, Joseph N.  
 PA Mobil Oil Corp. , USA  
 SO U.S., 5 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4444902	A	19840424	US 1981-333370	19811222
	AU 8317996	A	19850221	AU 1983-17996	19830815
	AU 568596	B2	19880107		
	US 4530756	A	19850723	US 1984-581497	19840217
	US 4564719	A	19860114	US 1985-733338	19850513
	US 4577048	A	19860318	US 1985-733340	19850513
	US 4579987	A	19860401	US 1985-733337	19850513
PRAI	US 1981-333370		19811222		
	US 1984-581497	A2	19840217		

OS MARPAT 101:40826  
 AB To prepare a catalyst with enhanced cracking and isomerization activities, 2 g of NH<sub>4</sub>NO<sub>3</sub>-exchanged and calcined (at 538°) ZSM 5

zeolite (1:26,000 Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>) was impregnated with Al(NO<sub>3</sub>)<sub>3</sub>, dried at 130°, and treated with an excess of NH<sub>4</sub>F (until AlF<sub>3</sub> precipitated). The product was hydrolyzed with hot water, treated with saturated NH<sub>4</sub>NO<sub>3</sub> in EtOH, dried, and calcined at 650° for 6 h, again exchanged with NH<sub>4</sub>NO<sub>3</sub>, and calcined at 538°. The  $\alpha$ -value (hexane cracking) and CPI value (cyclopropane isomerization) were 2.1 and 130, resp., as against 0.015 and 1 for the merely calcined zeolite.

L6 ANSWER 24 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1984:162655 CAPLUS

DN 100:162655

TI Activation of zeolites

IN Miale, Joseph N.; Chang, Clarence D.

PA Mobil Oil Corp., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4427788	A	19840124	US 1982-355415	19820308
	JP 60042223	A	19850306	JP 1983-148145	19830815
	US 4500422	A	19850219	US 1983-552542	19831116
	US 4538015	A	19850827	US 1984-668356	19841105
	IN 163147	A1	19880813	IN 1984-MA864	19841113
PRAI	US 1982-355415		19820308		
	US 1983-552542	A3	19831116		

OS CASREACT 100:162655; MARPAT 100:162655

AB Zeolite catalysts with high acid activities are formed by impregnating a zeolite with a SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> mol ratio  $\geq 70$  at 0-100° with an ammoniacal 0.1-5% AlF<sub>3</sub> solution containing NH<sub>4</sub>OH and/or NH<sub>3</sub>, contacting this impregnated zeolite with a warm aqueous 0.1-2N NH<sub>4</sub> salt solution, and calcining at 200-600°. Thus, a ZSM-5 zeolite was impregnated with an (NH<sub>4</sub>)<sub>3</sub>AlF<sub>6</sub> solution in NH<sub>4</sub>OH at 20°, contacted with 1N NH<sub>4</sub>NO<sub>3</sub>, and calcined at 1000° for 60 min to give a catalyst with high acid activity.

L6 ANSWER 25 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1983:469992 CAPLUS

DN 99:69992

TI Iron-copper catalysts on fluoride substrates in the dehydrogenation of cyclohexanol

AU Goryacheva, V. N.; Bondarev, Yu. M.; Erofeev, B. V.; Mardashev, Yu. S.

CS Mosk. Gos. Univ., Moscow, USSR

SO Vestsi Akademii Navuk BSSR, Seryya Khimichnykh Navuk (1983), (3), 8-9

CODEN: VBSKAK; ISSN: 0002-3590

DT Journal

LA Russian

AB The dehydrogenation of cyclohexanol was studied with Fe-Cu catalysts on NaF, CaF<sub>2</sub>, MgF<sub>2</sub>, and AlF<sub>3</sub> supports. With the NaF support dehydrogenation occurred with 100% selectivity. Addition of Cu, which tended to concentrate on the surface of the metallic phase, decreased the activation energy of dehydrogenation.

L6 ANSWER 26 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1979:540442 CAPLUS

DN 91:140442

TI The disproportionation of toluene over a HY/ $\beta$ -aluminum fluoride/copper catalyst. 1. Preparation and characterization

AU Aneke, L. E.; Gerritsen, L. A.; Van den Berg, P. J.; De Jong, W. A.

CS Lab. Chem. Technol., Delft Univ. Technol., Delft, 2628 BL, Neth.

SO Journal of Catalysis (1979), 59(1), 26-36

CODEN: JCTLA5; ISSN: 0021-9517

DT Journal

LA English

AB The preparation, characterization and testing of a catalyst consisting of HY zeolite 72,  $\beta$ -AlF<sub>3</sub> 18 and Cu 10 weight% for the conversion of PhMe to C<sub>6</sub>H<sub>6</sub> and xylenes are described. The optimum activation temperature is 500°. Disproportionation activity is localized in the transitional pores of the catalyst; the micropores only serve to collect heavy reaction products which would otherwise lead to deactivation. The results of NH<sub>3</sub> adsorption combined with the effect of activation temperature on activity indicate that Broensted-acid sites formed during activation are responsible for the activity. Only .apprx.10% of the surface sites on freshly activated catalyst are acidic.

L6 ANSWER 27 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1973:3452 CAPLUS

DN 78:3452

OREF 78:579a,582a

TI Dehydrofluorination of 1,1,1-trifluoroethane catalyzed by metal fluorides

AU Okazaki, Susumu; Komata, Motoaki

CS Fac. Eng., Ibaraki Univ., Hitachi, Japan

SO Nippon Kagaku Kaishi (1972), (9), 1615-21

CODEN: NKAKB8; ISSN: 0369-4577

DT Journal

LA Japanese

AB The dehydrofluorination of MeCF<sub>3</sub> was examined on AlF<sub>3</sub>, FeF<sub>3</sub>, and MgF<sub>2</sub> catalysts at temps. as low as 530°; AlF<sub>3</sub> was most active and most stable. The activation energy for the reaction on AlF<sub>3</sub> catalyst was 28.3 kcal/mole. The dehydrofluorination in the absence of catalyst at temps. higher than 750°C is first order and the reaction rate constant  $k = 1.63 \times 10^{10} \exp(-53800/RT)$ .

L6 ANSWER 28 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1970:56919 CAPLUS

DN 72:56919

OREF 72:10451a,10454a

TI Aminoethylation of cellulose, cellulose derivatives, or poly(vinyl alcohol)

IN Hartman, Robert J.; Fujiwara, Edward J.

PA Wyandotte Chemicals Corp.

SO Ger., 11 pp.

CODEN: GWXXAW

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1301893		19691120	DE 1961-1443214	19610113
AB	Cellulose (I), I derivs., or poly(vinyl alc.) are aminoethylated, if necessary after activation by treatment with gaseous ethylene oxide over CaCl <sub>2</sub> , with $\geq 0.05$ mole aminoethylating agent per 0.0062 mole anhydroglucose unit or 0.023 mole vinyl alc. units in a practically H <sub>2</sub> O-free inert solvent in the presence or absence of a catalyst. A N content $>20\%$ was obtained in a single throughput. An aqueous suspension of cotton was kept several days, the suspension filtered, the cotton suspended in EtOH, and the filter cake pulverized and dried 8 hr. Approx. 450 g CaCl <sub>2</sub> and 50 ml ethylene oxide (II) were placed in a desiccator, II was evaporated, the cellulose was activated 2 days in the desiccator, and 1 g of the cotton was sealed in a tube with 8.3 g ethylenimine and 10 ml PhMe. The tube was heated 24 hr at 140°, the product was suspended in MeOH and filtered until the MeOH filtrate was neutral, and the product had N content 26.9%. Other solvents used were o-dichlorobenzene, dioctyl phthalate, C <sub>6</sub> H <sub>6</sub> , and n-C <sub>7</sub> H <sub>16</sub> . Catalysts used were Me <sub>3</sub> N.HCl, PhCH <sub>2</sub> Cl,				

n-octyl chloride, sec-BuCl, tert-BuCl, allyl chloride, BuBr, sec-BuBr, tert-BuBr, allyl bromide, Me<sub>4</sub>NCl, Et<sub>4</sub>NBr, ethylene dichloride, iso-BuCl, ethylene chlorohydrin, HCl, AlCl<sub>3</sub>·6H<sub>2</sub>O MeI, and NH<sub>4</sub>F. Derivs. of I used were Me cellulose, hydroxyethyl cellulose, Na CM-cellulose, and regenerated I.

L6 ANSWER 29 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1968:466668 CAPLUS

DN 69:66668

OREF 69:12427a,12430a

TI Isomerization of butenes

AU Pis'man, I. I.; Kas'yanov, V. V.; Ninalalov, I. I.; Dalin, M. A.

SO Khimicheskaya Promyshlennost (Moscow, Russian Federation) (1968), 44(2), 98-102

CODEN: KPRMAW; ISSN: 0023-110X

DT Journal

LA Russian

AB The catalytic isomerization of butenes over  $\gamma$ -Al<sub>2</sub>O<sub>3</sub>, fluorinated Al<sub>2</sub>O<sub>3</sub> (containing 0.36% or 5% F), and AlF<sub>3</sub> is studied using an apparatus described

earlier (I. I. Pis'man, N. I. Ninalalov, and M. A. Danilin, 1965). At 180°, only 3% 1-butene is isomerized into 2-butenes over  $\gamma$ -Al<sub>2</sub>O<sub>3</sub>, whereas at >260° the equilibrium composition of the mixture is reached. The process follows 1st-order rate equation, with activation energies 33.9 and 36.8 kcal./mole for the straight and reverse reaction, resp. Addition of KOH decreases the catalyst activity. The skeletal isomerization of butenes into isobutene requires more drastic conditions and is best achieved over fluorinated Al<sub>2</sub>O<sub>3</sub> containing 0.36% F. At 400°, the reaction mixture contains .apprx.60% of the equilibrium amount of isobutene, and also some H, CH<sub>2</sub>:CH<sub>2</sub>, MeCH:CH<sub>2</sub>, butane,

and

isobutane. The skeletal isomerization is also a 1st-order mono-mol. process, with activation energies 21 and 22.7 kcal./mole for the straight and reverse reaction, resp.

L6 ANSWER 30 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1966:507448 CAPLUS

DN 65:107448

OREF 65:19974a-c

TI Isomerization of n-butylenes to isobutylene on fluorinated Al<sub>2</sub>O<sub>3</sub> and on AlF<sub>3</sub>

AU Pis'man, I. I.; Ninalalov, I. I.

SO Azerbaidzhanskii Khimicheskii Zhurnal (1966), (3), 54-8

CODEN: AZKZAU; ISSN: 0005-2531

DT Journal

LA Russian

AB The activities of pure AlF<sub>3</sub> (I) and of Al<sub>2</sub>O<sub>3</sub> treated with HF to correspond to (Al<sub>2</sub>O<sub>3</sub> + 0.36% F) (II) or to (Al<sub>2</sub>O<sub>3</sub> + 5% F) (III) in the title conversions run in a flow system were studied, all the catalysts being activated with air 4 hrs. at 450° prior to their application. II was highly selective giving at 400° from 1-butene fed with a space rate of 500 hr.<sup>-1</sup> only 6.4% non-butene products (the corresponding figures for III and I were 89.6 and 19.2%, resp.); the butenic fractions from I, II, and III contained 9.3, 23.6, and 36.4% isobutylene, resp. The reaction kinetics were investigated in detail for the conversions over II at 350, 375, 390, or 400°; the reactants followed the 1st-order law with substantially the same rate constant in all cases (starting with 1-butene, cis-2-butene, or trans-2-butene). The activation energy for the n-butylene → isobutylene isomerization was determined as 21.0 kcal./mole, and that for the back process as 22.7 kcal./mole. Gradual poisoning of II with LiOH indicated that at least 3 kinds of active spots were present. A carbonium-ion based mechanism of the catalyst action is discussed.

L6 ANSWER 31 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1966:472671 CAPLUS  
DN 65:72671

OREF 65:13493f-h

TI Catalytic activity of aluminum trifluoride

AU Antipina, T. V.; Vershinina, N. D.

CS M.V. Lomonosov Moscow State Univ., Moscow

SO Kinetika i Kataliz (1966), 7(3), 559-62

CODEN: KNKTA4; ISSN: 0453-8811

DT Journal

LA Russian

AB The kinetics of dehydration of EtOH as well as of cracking of cumene over  $AlF_3$  were studied in flow systems. The sp. surface of the catalyst was 20 m.<sup>2</sup>/g. Samples of  $AlF_3$  sintered in a stream of dry air at 500° 4 hrs. had acid centers of medium strength. There was a sharp increase of the degree of conversion of the alc. to  $C_2H_4$  with an increase of  $V_0$  ( $V_0$  = rate of feed of initial substance) when the yield of Et<sub>2</sub>O passed through a maximum. The degree of conversion increased with an increase of temperature and catalyst activity, the dehydration reaction followed a consecutive mechanism, and the  $AlF_3$  had weakly active centers for the dehydration process to  $C_2H_4$ . Therefore, the Et<sub>2</sub>O formed remains in the gas phase and a further increase of contact time did not lead to a decrease of the degree of conversion to the ether. The energy of activation of the process was 35.6 kcal./mole. Results of the study of the kinetics of cracking of cumene showed that the kinetic laws obtained during a study of this reaction on aluminosilicate,  $Al_2O_3/HF$ ,  $Al_2O_3/BF_3$ , and  $AlF_3$  were identical because on all the catalysts the process is described by a kinetic equation for a heterogenous catalytic reaction of the 1st order, i.e. under conditions of strong inhibition by the reaction products. The  $AlF_3$  used here had high cracking activity. The energy of activation for the cracking process was 35.6 kcal.-mole. It was assumed that surface acid centers of medium strength played an important role in the cracking process on highly active and stable catalysts.

L6 ANSWER 32 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1964:447021 CAPLUS  
DN 61:47021

OREF 61:8111a-c

TI Hydrocarbon conversion catalyst

PA California Research Corp.

SO 14 pp.

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 962347		19640701	GB 1961-17574	19610515
	DE 1201818			DE	
	US 3140925		19640714	US 1960-30373	19600519
PRAI	US		19600519		

AB Activated refractory oxide supports are impregnated with aqueous solns. of catalytically active metal fluorides. Thus, a calcined, powdered  $SiO_2-Al_2O_3$  (60  $\mu$ ) containing 25%  $Al_2O_3$  and having a pore volume of 0.8 cc./g. and a surface area of 433 m.<sup>2</sup>/g. was mixed a for 78 hrs. with a saturated solution of  $NiF_2$  at a ratio of 2 vols. catalyst to 15 vols. solution. After filtering, washing 3 times with  $H_2O$ , and drying for 16 hrs. at 300°F., the catalyst contained 23.9% Ni and 13.7% F. After reducing and sulfiding in the usual manner, the catalyst was used for hydrocracking a hydrorefined, light cycle oil (b.p. 357-570°, gravity 30° API, 93°F. aniline point, 0.2 p.p.m, basic N, 48% by volume aromatics, 1% olefins, and 51% paraffins) under the conditions of 6500 ft.<sup>3</sup> H/bbh feed, 1200 lb./in.<sup>2</sup> gage total pressure, liquid hourly space velocity 1.0, and 560-600°F. to give

60% conversion of the feed to a product b. <400°F. Little fouling of the catalyst was noted after 462 hrs. Similarly prepared catalyst contained: Ni 6.05 and F 2.3; Mo 10.6, Ni 4.8, and F 1.7; Co 3.74 and F 3.05%; Cr 1.26 and F 1.12%; Ni 41 and F 18%; and Al 3 and F 0.4%. A catalyst having a surface area of 100 m.2/g, and suitable for the conversion of NO to NO2 was made by mixing calcined Al2O3 with a saturated solution of CuF2 until 20% Cu was absorbed, drying, and oxidizing the Cu. The catalysts are also useful for cracking, hydrotreating, dehydrogenation, oxidation, isomerization, and reforming.

L6 ANSWER 33 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1964:438944 CAPLUS  
 DN 61:38944  
 OREF 61:6751f-g  
 TI Solid-phase kinetics of the reaction between AlF3 and SiO2  
 AU Locsei, Bela  
 CS Central Inst. Bldg. Mater. Res., Budapest, Hung.  
 SO Proc. Conf. Silicate Ind., 6th, Budapest (1963), Volume Date 1961 291-6  
 DT Journal  
 LA Unavailable  
 AB

When AlF3 and SiO2 are heated together, the first activation phase begins at 600° with the simultaneous emission of SiF4. Topaz forms between 700-900°. The second activation stage begins at 900°, also with the simultaneous emission of SiF4. Mullite formation begins at 900° and reaches equilibrium >1100°. The final product depends upon the AlF3:SiO2 ratio; with the ratio <1.29 quartz and mullite form, at 1.29 mullite, >1.29 <1.87 mullite and corundum, and >1.87 corundum. The presence of H2O is necessary for the formation of topaz, mullite, and corundum. H2O acts as a catalyst, reacting with AlF3 to form HF which in turn reacts with SiO2 to form SiF4.

L6 ANSWER 34 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1963:427756 CAPLUS  
 DN 59:27756  
 OREF 59:4951b-d  
 TI Catalyst for the reforming of gasolines  
 IN Vybihal, Jaromir  
 DT Patent  
 LA Unavailable

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CS 101106		19610915	CS	19581202
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AB Pt catalysts containing a small amount of NaF, Na3AlF6, CaF2, or MgF2, either singly, or in a combination, have excellent dehydrogenation, dehydrocyclization, and isomerization properties and give high yields in aromatization, simultaneously affording selectively controlled cleavage of long-chain hydrocarbons to lower-mol.-weight compds. and decreasing the formation of C deposits on the catalyst surface, thus prolonging its working period. The use of F for the activation of Pt catalysts is of advantage up to 0.7% by weight F, since exceeding this content results in excessive cleavage; however, if Al2O3 with 0.01-2.0% F is used as the carrier, the cleavage proceeds selectively, giving substantially higher yields of the liquid product. Best results were given by Al2O3 obtained by precipitating NaAlO2 with HNO3 and washing to give

an

alkali content of 0.01-0.2% and peptized with a mixture of HNO3 and HF to give the final content of F between 0.01% and 2.0%. Thus, 100 parts powdered Al2O3 containing 2 parts of a mixture of NaF, Na3AlF6, CaF2, and MgF2 was peptized with 1 part of a mixture of HNO3 and HF with the addition of 130 parts H2O containing 0.35 part H3PtCl6. The paste was homogenized 3 hrs. with the addition of 0.3 part NH4OH with the passage of H2S, cut, and formed into particles of 2 X 3 mm. up to 5 X 5 mm., dried at room temperature for 2448

hrs.,

then at 110° for 10 hrs., and activated for 10 hrs. at 450-550° in a stream of air to give a catalyst.

L6 ANSWER 35 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1963:33751 CAPLUS  
DN 58:33751  
OREF 58:5800g-h  
TI Catalyst manufacture  
PA Phillips Petroleum Co.  
SO 8 pp.  
DT Patent  
LA Unavailable  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 912275		19621205	GB 1961-22202	19610620
PRAI	US		19600711		

AB Catalysts for the polymerization of olefins are described. Thermoplastic polymers are produced which can be shaped to any desired form. Thus, a catalyst was prepared by impregnating a silica-alumina gel (90:10% by weight ratio) with an aqueous solution of Cr<sub>2</sub>O<sub>3</sub>, drying at 300°F., and activation by heating in the presence of anhydrous air for 5 hrs. at 1000°F. During this treatment, the catalyst was maintained in the form of a fluidized bed. The Cr<sub>2</sub>O<sub>3</sub> could be replaced with hydrated AlF<sub>3</sub> in sufficient amount to result in an AlF<sub>3</sub> content of the catalyst, before subsequent heating, of 5% by weight

L6 ANSWER 36 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1962:411604 CAPLUS  
DN 57:11604  
OREF 57:2423g-i, 2424a  
TI Polymerization of olefins  
IN Rust, Kurt; Junghanns, Ernst; Sommer, Siegfried; Bier, Gerhard  
PA Farbwerke Hoechst A.-G.  
SO 5 pp.  
DT Patent  
LA Unavailable

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1109895		19610629	DE 1957-F24216	19571019

AB Propene and 1-butene were polymerized at an increased rate without sacrifice of stereospecificity by using a combination of alkyl Al chloride and alkyl Al fluoride in activation of the catalyst. The fluoride may be added as such or generated in the reaction mixture, e.g. from NaF. Thus, 110cc. TiCl<sub>4</sub> was added during 4 hrs. to 600 cc. of a 20% solution of Et<sub>2</sub>AlCl (I) in a diesel oil fraction (b. 190-220°) at 0°. The reaction was continued 4 hrs. at 0° 10 hrs. at room temperature, and 4 hrs. at 85-90° with stirring and passage of N. The red-brown precipitate was washed with 3-4 2-l. portions of fresh solvent and suspended under N in 2 l. of a saturated hydrocarbon (b. 200-20°) free of O and H<sub>2</sub>O and containing 20 millimoles activator at 50°. The activators in a series of expts. were I, Et<sub>2</sub>AlF (II), and mixts. of I and II in mole ratios 3:1, 1:1, and 1:3. C<sub>3</sub>H<sub>6</sub> at 50° and 1 atmospheric was passed in for 3 hrs. and the mixture decomposed with 40 ml. BuOH and 500 ml. H<sub>2</sub>O. The insol. polymer was collected, steam distilled, and dried. A 1:1 molar mixture of I and II gave an optimum reaction rate (12.5 g. insol. polymer/g. TiCl<sub>3</sub> per hr.), an insol. polymer content of 96%, and a reduced viscosity of 10.6. In similar expts., activators were prepared by stirring together I and NaF; Et<sub>3</sub>Al<sub>2</sub>Cl<sub>3</sub> (III), NaCl, and NaF; Et<sub>3</sub>Al, III, and NaF; and Et<sub>3</sub>Al, AlCl<sub>3</sub>, and AlF<sub>3</sub> at 20°; and completing the reaction by brief heating at 90-100° after the end of the exothermic reaction.

L6 ANSWER 37 OF 37 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1955:62074 CAPLUS

DN 49:62074

OREF 49:11918e-g

TI Treatment of aluminum fluoride or zirconium fluoride catalyst with chlorine trifluoride

IN Bandes, Selwyn; Miller, Charles B.

PA Allied Chemical & Dye Corp.

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 2709688		19550531	US 1953-384522	19531006
AB	AlF <sub>3</sub> or ZrF <sub>4</sub> , catalyst, prepared by bringing the corresponding chloride into contact with HF gas, is activated when fresh, or regenerated when contaminated with carbonaceous or other foreign materials, by treatment with ClF <sub>3</sub> (I). The catalyst is treated with I at 275-325° for 15-45 min. and then swept with an inert gas such as N. This activation is attributed to the reduction of crystallinity and the removal of impurities. E.g., the activity of a ZrF <sub>4</sub> catalyst, having become spent for the preparation of CClF <sub>2</sub> .CClF <sub>2</sub> (II) by the reaction of CCl <sub>3</sub> .CClF <sub>2</sub> (III) with HF, is restored to 96.3% of the original activity by treatment with I for 30 min. at 300°. This treatment also produces better activation of fresh catalyst than heating to temps. above 400° in the presence of O as shown by 82.7 vs. 76.3% conversion of III to II with ZrF <sub>4</sub> activated by the 2 methods.				